

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 through 10 (Canceled)

Claim 11 (Previously presented): A method of forming a thermal barrier coating (26) on a surface of a component (10), the method comprising the steps of:

forming the thermal barrier coating (26) at an elevated temperature by co-evaporating carbon and a thermal-insulating material to deposit elemental carbon in pores (32) that are within grains and at and between grain boundaries of the thermal-insulating material, the pores (32) establishing an open porosity within the thermal barrier coating (26); and then

during a subsequent high temperature excursion, partially sintering the thermal barrier coating (26) at a temperature of at least 950°C to evolve a carbon-containing gas from at least some of the elemental carbon and then

close at least some of the pores (32) to entrap the carbon-containing gas within the closed pores (32), the elemental carbon and/or the carbon-containing gas being present in an amount sufficient to thermally stabilize the microstructure of the thermal-insulating material;

wherein the pores (32) containing the carbon-containing gas are resistant to sintering, grain coarsening and pore redistribution.

Claim 12 (Original): A method according to claim 11, wherein the forming step comprises depositing the thermal barrier coating (26) by electron beam physical vapor deposition during which an ingot of the thermal-insulating material and a second ingot of a carbon-containing or carbide-containing material are simultaneously evaporated.

Claim 13 (Original): A method according to claim 12, wherein the second ingot comprises graphite.

Claim 14 (Previously presented): A method according to claim 11 wherein the open porosity within the thermal barrier coating (26) constitutes at least 25 volume percent of the thermal barrier coating (26).

Claims 15-17 (Canceled)

Claim 18 (Previously presented): A method according to claim 11, wherein the sintering step forms additional pores (32) that entrap the carbon-containing gas.

Claim 19 (Canceled)

Claim 20 (Original): A method according to claim 11, wherein the thermal-insulating material is yttria-stabilized zirconia and the thermal barrier coating (26) comprises columnar grains (30).

Claims 21 through 25 (Canceled)

Claim 26 (New): A method according to claim 11, wherein the thermal-insulating material has a binary composition containing a stabilizer.